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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,498	07/25/2003	Gregory A. Steinlage	15-XT-6176 (GEMS-A 0130)	1497
27256	7590	11/17/2004	EXAMINER	
ARTZ & ARTZ, P.C. 28333 TELEGRAPH RD. SUITE 250 SOUTHFIELD, MI 48034			ARTMAN, THOMAS R	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/604,498

Applicant(s)

STEINLAGE ET AL.

Examiner

Thomas R Artman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18-20 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 12, 14-16, 18, 19 and 22-25 is/are rejected.
- 7) ☒ Claim(s) 10, 13 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-9, 12, 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Marioni (US 6,538,353).

Regarding all the above claims, Marioni discloses an electric motor having:

a) a rotor core having slots and bars (squirrel cage design with an iron core having the slots and bars made of copper in the slots), and

b) a non-sprayed, non-corrosive sleeve of stainless steel having about 12% chromium and having an outer surface that is not oxidized, where the sleeve is coupled to and at least partially surrounds the rotor core (col.1, lines 17-23 and 62-64).

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Claims 1, 6-9, 12 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Klostermann (US 5,056,126) ("K126").

Regarding all the above claims, K126 discloses an imaging x-ray tube rotor assembly for an imaging tube (Figs.4 and 5), including:

a) a rotor core having slots and bars (squirrel cage portion 72 with a magnetic steel core having the slots and bars made of copper in the slots), and

b) a non-sprayed, non-corrosive sleeve 97a of stainless steel having about 12% chromium and having an outer surface that is not oxidized, where the sleeve is coupled to and at least partially surrounds the rotor core (col.6, lines 44-55).

Further regarding claim 16, the rotor core is made at least partially from stainless steel (support sleeve portion 71).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marioni, as applied to claim 1 above.

Regarding both claims, Marioni does not specifically disclose that the outer surface of the sleeve is oxidized. However, the surface becomes naturally oxidized upon exposure to air,

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where the chromium in the steel oxidizes with air, thus forming a protected layer that defines why stainless steel is stainless, or corrosion resistant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for Marioni to oxidize the outer surface of the stainless steel sleeve to improve the corrosion resistance of the sleeve.

Claims 2-4, 18, 19 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over K126 in view of Klostermann (US 5,185,774) ("K774").

With respect to claims 2-4, K126 does not specifically disclose the use of a magnetic stainless steel (thus a magnetic, non-corrosive material having about 12% chromium) for making the rotor core. The rotor core is made from a magnetic steel.

K774 teaches the practice of using magnetic stainless steel (stainless steel No. 416) in rotor-driven motors (item 184) in a vacuum environment. In this way, the magnetic motor drive is corrosion resistant, thus preserving the critical environment for reliable x-ray generation. This also minimizes the cost and complexity of the manufacturing process since no coatings or additional materials are needed to protect the motor structures from corrosion. All the motor segments in drive means 176 are made of non-corrosive materials because these parts are located inside the vacuum envelope. Some motor segments in drive means 151 are made of iron or magnetic steels that are corrosive; however, those portions are outside the vacuum envelope (ventilation holes 169 in plate 167 for air to circulate in drive means 151; col.5, lines 28-54).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made for the rotor core 72 of K126, being within the vacuum envelope (col.7, lines 26-45), be made of a non-corrosive material such as magnetic stainless steel in order to maintain an ideal environment for reliable x-ray generation without significantly increasing the cost or complexity of the rotor structure as taught by K774.

Regarding claims 18, 19, 23 and 24, K126 discloses a method of producing an imaging x-ray tube rotor assembly (Figs.4 and 5), including:

- a) forming a rotor core at least partially from a magnetic iron-based material (squirrel cage rotor core 72 made of magnetic steel with slots having copper bars), and
- b) forming a sleeve produced at least partially from a non-magnetic, non-sprayed-on, non-corrosive material 97a partially consisting of chromium over the rotor core.

Further regarding claims 18 and 19, K126 does not specifically disclose the use of a magnetic, non-corrosive, iron-based material having chromium for making the rotor core. The rotor core of K126 is made from a magnetic steel.

K774 teaches the practice of using magnetic stainless steel (stainless steel No. 416) in magnetic rotors (item 184) in a vacuum environment. In this way, the magnetic motor drive is corrosion resistant, thus preserving the critical environment for reliable x-ray generation. This also minimizes the cost and complexity of the manufacturing process since no coatings or additional materials are needed to protect the motor structures from corrosion. All the motor segments in drive means 176 are made of non-corrosive materials because these parts are located inside the vacuum envelope. Some motor segments in drive means 151 are made of iron or

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magnetic steels that are corrosive; however, those portions are outside the vacuum envelope (ventilation holes 169 in plate 167 for air to circulate in drive means 151; col.5, lines 28-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the rotor core 72 of K126, being within the vacuum envelope (col.7, lines 26-45), be made of a magnetic, non-corrosive, iron-based material having chromium, such as stainless steel No. 416, in order to maintain an ideal environment for reliable x-ray generation without significantly increasing the cost or complexity of the rotor structure as taught by K774.

With respect to claim 22, K126 does not specifically disclose that the outer surface of the sleeve is oxidized. However, the surface becomes naturally oxidized upon exposure to air, where the chromium in the stainless steel oxidizes with air, thus forming a protected layer that defines why stainless steel is stainless, or corrosion resistant.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for K126 to oxidize the outer surface of the stainless steel sleeve to improve the corrosion resistance of the sleeve.

With respect to claim 25, K126 discloses the practice of oxidizing an exterior surface of the rotor assembly (heat cage 48 of K126, see at least col.5, lines 41-53). The oxidation allows the chromium in the copper-based alloy to oxidize, which makes a highly emissive surface that aids the dissipation of large amounts of heat that are generated in an x-ray tube. K126 also teaches the practice of oxidizing other exterior surfaces of the rotor assembly for the same reason (stainless steel heat sink 316; col.14, lines 57-62).

***Allowable Subject Matter***

Claims 10, 13 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record neither teaches nor reasonably suggests the additional structure or method of making where a non-magnetic, highly-conductive sheet is coupled (formed) over the rotor core as required by claims 10 and 20.

Claim 13 is objected to by virtue of its dependency.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



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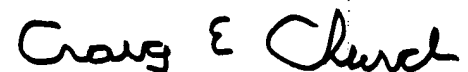
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (571) 272-2485. The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas R. Artman  
Patent Examiner



Craig E. Church  
Primary Examiner